

N<sup>o</sup> 85



A.D. 1895

*Date of Application, 1st Jan., 1895*

*Complete Specification Left, 30th Sept., 1895—Accepted, 23rd Nov., 1895*

### PROVISIONAL SPECIFICATION.

#### Improved Means for Heating and Purifying Air.

I, EDWARD PREW, of 1 Corporation Street, Barnsley, in the County of York, Schoolmaster, do hereby declare the nature of this invention to be as follows:—

As now ordinarily arranged, a large percentage of the heat resulting from the combustion of fuel in domestic fire places is permitted to ascend into the open air without being utilized for any purpose whatever.

Now the object of my invention is to utilize this heat as the results of combustion ascend for heating, and in some cases purifying the atmosphere in one or more compartments in addition to that in which the fire is situated.

For this purpose I secure a curved pipe in one side of the chimney in such a manner that the middle portion thereof projects into said chimney and its ends open, one above the other, into the compartment required to be heated.

The pipe may be attached to, or formed, on a plate capable of being secured in an opening in the chimney thus allowing of said tube being removed when the chimney is being swept, or for any other purpose.

The result of this arrangement is that the heated gases of combustion ascending the chimney impinge upon the middle portion of the pipe and so heat it, the consequence being that a current of air takes place through said pipe and cold air entering at the lower end of the tube and after its temperature has been raised and as a consequence its specific gravity lowered escaping from the upper end thereof as will be perfectly understood.

Where found desirable this current of air may be purified by placing a filter of charcoal or the like in the pipe at a suitable point.

Dated this 31st day of December 1894.

CASTLE SMITH,  
“Invention” Office, 54 Fleet Street, London, E.C.,  
Agent for the Applicant.

### COMPLETE SPECIFICATION.

#### Improved Means for Heating and Purifying Air.

I, EDWARD PREW of 1 Corporation Street Barnsley in the County of York Schoolmaster do hereby declare the nature of this invention and in what manner the same is to be performed, to be particularly described and ascertained in and by the following statement:—

As now ordinarily arranged a large percentage of heat resulting from the combustion of fuel in domestic fire-places is permitted to ascend into the open air, or to spend itself into the chimney flues without being utilized for any purpose whatever.

The object therefore of my present invention is to employ a new or improved apparatus whereby this hitherto wasted heat may be utilized for warming or increasing the temperature of a room chamber or other compartment by the air within such compartment circulating through said apparatus thus gathering the

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heat therefrom and conducting it by the movement of the air throughout the room, by this means it will be obvious that draughts caused by currents of cold air, as is the result with waste heat utilizers which receive air from the outside of room, are prevented.

I construct and arrange my apparatus substantially as described with reference to the accompanying sheet of drawings in which 5

Fig. 1. is a front view of my apparatus applied to an ordinary domestic fire-place flue or chimney, and Fig. 2 is a cross sectional elevation taken on broken line *a a* of same.

Fig. 3 is an isometric perspective view of my improved apparatus shown applied to an ordinary domestic chimney and operating within two separate chambers or rooms and, 10

Fig. 4. is a sectional elevation of a series of chambers one above the other having a common vertical flue with fire-place and showing my apparatus operating within several compartments. 15

Similar letters of reference denote corresponding parts in each view.

I employ a curved pipe *P* preferably composed of metal and having a coat of any well known heat absorbing and radiating substance, and I prefer to make with or attach to the pipe *P*, a plate *p*<sup>1</sup> which I hinge or otherwise fasten to the front or any convenient part of the chimney *C*, having previously formed a hole *c*<sup>1</sup> therein in order to allow the middle portion *p*<sup>2</sup> of pipe *P* to extend into the chimney flue *c*<sup>2</sup> a suitable distance. 20

The said middle portion *p*<sup>2</sup> is preferably spherical in form and a little larger in diameter than the remainder of the pipe, and the lower opening *p*<sup>3</sup> is larger in area than the upper opening *p*<sup>4</sup> and both are open to the room *R* required to be heated. 25

By the use of the plate *p*<sup>1</sup> and the hinging or otherwise easy securing thereof to the chimney *C* the tube *P* may be easily removed for cleaning or when it is desired to sweep the chimney flue *c*<sup>2</sup>.

The result of my improved apparatus and arrangement is that the heated gases of combustion ascending the flue *c*<sup>2</sup> impinge upon the pipe *P* and the heat is conducted to the inner part of said pipe in consequence of which a current of air takes place through said pipe *P* the cooler air from the chamber *R* entering at the opening *p*<sup>3</sup> and after its temperature has been raised it exits at *p*<sup>4</sup> having during its passage through the pipe *P* collected heat which otherwise would have passed up the flue *c*<sup>2</sup>. 30 35

This heated air circulates through the room or chamber *R*.

When required to disinfect, fumigate, or purify the air in the chamber *R* I fit a perforated screen or plate *s* near the exit end *p*<sup>4</sup> of the apparatus and I place upon it either charcoal, sponge or other porous substance which may contain any required disinfecting or fumigating substance. 40

The air passing through the apparatus *P* circulates throughout the chamber *R* impregnates the atmosphere therein with the substance used, or the air passing through a suitable medium at *s* obviously becomes purified.

Referring to Fig. 3 the upper chamber *R* is heated solely by the apparatus *P* which gathers the waste heat from the flue *c*<sup>2</sup> and distributes it in the manner described. 45

Referring to Fig. 4. all the chambers *R*, are shown as heated solely by the what otherwise would be the waste heat ascending the flue *c*<sup>2</sup>.

It will be obvious that my apparatus would be useful for conservatories and similar hot houses and for fumigating the plants, as the air gets a thorough circulation throughout the house *R*. 50

Having now particularly described and ascertained the nature of my said invention and in what manner the same is to be performed I declare that what I claim is. 55

1. In apparatus for heating and purifying air the combination with a chimney

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flue  $c^2$  of a bent tube P having a part thereof extending within the flue and its two ends situated one above the other and open to the same room R substantially as described and for the object specified.

5 2. In apparatus P arranged as described the use of a screen  $s$  with charcoal or other air filtering medium with or without fumigating or disinfecting substance substantially as described.

3. Apparatus consisting of a tube P having openings  $p^3$  and  $p^4$  and an enlarged projecting portion  $p^2$  arranged substantially as described and illustrated and used for the purpose specified.

10 Dated this            day of September 1895.

H. F. BOUGHTON,  
Barnsley, Registered Agent.

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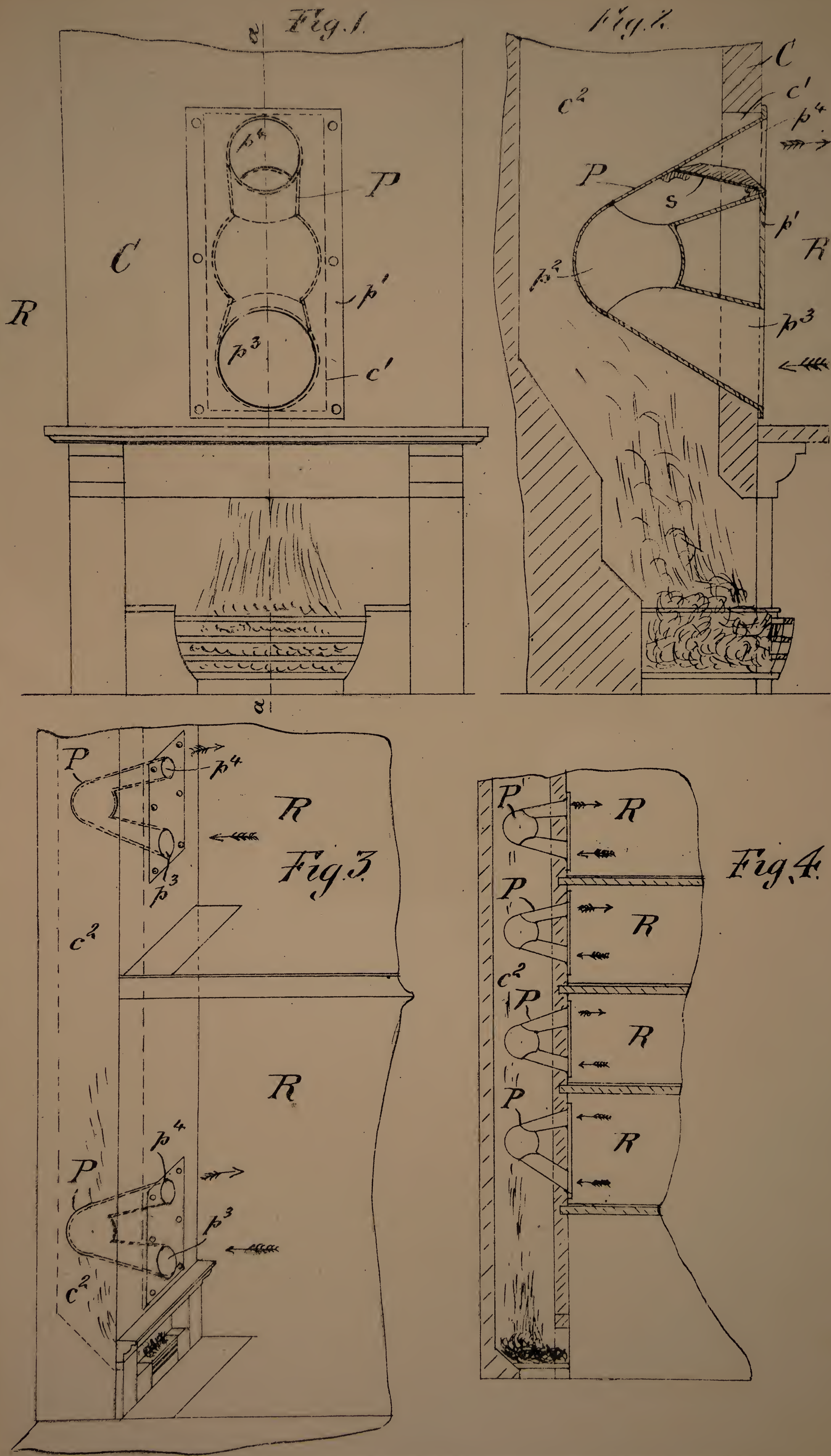
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[This Drawing is a reproduction of the Original on a reduced scale.]

